## **Hurricane Sandy Sampling Results**

On October 31, 2012, EPA took 4 samples in the Gowanus Canal area. Samples were taken from the ground floors of two buildings that had been flooded as well as directly from the canal. One of the buildings is located at the head of the canal, and the other near the 3<sup>rd</sup> street turning basin.

Samples of flood water from the ground floors of the two buildings were analyzed for bacteria and 139 different chemicals within the following categories: metals, volatile organic compounds, petroleum related compounds and semi-volatile organic compounds. Semi-volatile organic compound include polycyclic aromatic hydrocarbons or PAHs, which are the primary contaminants in Gowanus Canal sediment.

Levels of bacteria were high. While this type of bacteria becomes inactive over time, these findings reinforce the need for people to protect themselves when cleaning up flood waters that contain sewage and therefore contain bacteria. Fact sheets detailing the precautions people should take when cleaning flood waters can be found at <a href="http://www.epa.gov/sandy/">http://www.epa.gov/sandy/</a>.

The remaining four categories of pollutants were compared to health based values of drinking water quality. Chemicals that were tested were below levels of concern or not detected.

Low levels of gasoline and diesel derivatives were found, consistent with road run-off which often contains traces of fuel.

Levels of semi-volatile organic compounds were very low or not detected. These compounds include PAHs, which are a primary contaminant in the sediments at the bottom of the canal. The presence of some PAHs at low levels may also be related to spilled fuel and run off from asphalt.

Levels of most volatile organic compounds and metals were very low or not at levels that could be detected.

Levels of metals included some slight exceedances of drinking water standards. In the case of lead, its presence may be related to past lead usage in gasoline, typical to an urban environment.

## **GOWANUS SAMPLING - 10/31/12**

Sample ID:  Sampling Location:  Sampling Date:  Units:	Building #1 10/31/2012 ug/L		Building #2, Sample A 10/31/2012 ug/L		Building #2, Duplicate Sample B 10/31/2012 ug/L		Canal Water, Sample Taken at 6th & 2nd 10/31/2012 ug/L	
	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
VOLATILE ORGANICS								
Acetone	13	J*					30	J
Benzene							3	J
Semi-VOLATILE ORGANICS								
Acenaphthene							1	
Acenaphthylene							0.1	J

Anthracene							0.1	J
Benzo(a)anthracene							0.1	J
Di-n-butylphthalate			2	J	2	J		
Caprolactam			6	J	6	J		
Chrysene							0.1	J
Diethylphthalate			3	J	3	J	3	J
2,4-Dinitrotoluene	18		6		2	J	1	J
2,6-Dinitrotoluene	3		0.9	J				
bis(2-Ethylhexyl)phthalate			3	J	3	J	4	J
Fluoranthene							0.3	J
Fluorene							0.3	J
2-Methylnaphthalene							1	
4-Methylphenol							13	
Naphthalene	0.2	J					0.1	J
Phenanthrene							0.5	
Phenol							2	
Pyrene							0.4	J
TPH-GRO/DRO/ORO								
TPH-GRO (C6-C10)							58	J
TPH-DRO/ORO (C13-C22)	0.51		0.37		0.4		4.3	
TPH-DRO/ORO (C23-C40)	0.64	J	0.38	J	0.46	J	3.5	
Total TPH	1.2		0.75		0.86		7.8	
METALS	units = ug/l							
Aluminum	186	J	185	J	217		121	J
Barium	264		72.7		67.9		70.5	
Calcium	403000		325000		325000		169000	
Cobalt	5.7	J	6.6	J	9.1	J	2	J
Iron	1270		171	J	148	J	663	
Magnesium	802000		947000		879000		369000	
Manganese	162		51.7		47.6		131	
Potassium	304000		344000		321000		138000	
Sodium	6450000		7390000		7,270,000		3,450,000	
Vanadium			12.6	J	11.6	J	2.2	J
Zinc	6270		790		708		121	
Antimony	2.2		1.7		2.3		1	
Arsenic	2.6		3.6		2.9		1.9	J
Cadmium	2.9		3.2		3.5		1.9	
Chromium	2.3		1.8	J	1.9	J	1.4	J
Copper	16.6	J	16.4	J	16.5	J	28.4	
Lead	11.8		20.8		22.9		5.2	
Nickel	16.2		15.3		13.4		4.7	
Selenium	11.8		2.5		2.5		2	
Silver	0.25	J	0.12	J	0.17	J	0.13	
Thallium	0.22	J	0.19	J	0.23	J		

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В	ac	TP	ria

Enterococcus 2300 CFU 450 430 200 Coliform, Fecal 4900MPN 16000000 1100 1400 > Coliform, Total 16000000 > 130000MPN 23000 17000

\*J = Estimated value, but accurate within acceptable Quality Control standards.

Highlights = Polycyclic Aromatic Hydrocarbons (PAHs)

For spreadsheets showing full results:

http://www.epa.gov/region2/superfund/npl/gowanus/sandysampling.xlsx